

# Owners Manual

How to maintain and operate  
your EcoWater digital  
demand water system



ESM9 ESM11 ESM15





**Thank you for choosing a water softener from EcoWater. With over 80 years' experience we have manufactured your new water softener from quality corrosion resistant materials to give you many years of trouble-free softened water. This manual will guide you through the steps of how to install your unit and how to get the best out of it. Please read it carefully.**



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Due to continued product enhancement, EcoWater Systems Limited reserve the right to alter the technical specification of their products at any time.

# Unpacking your water softener

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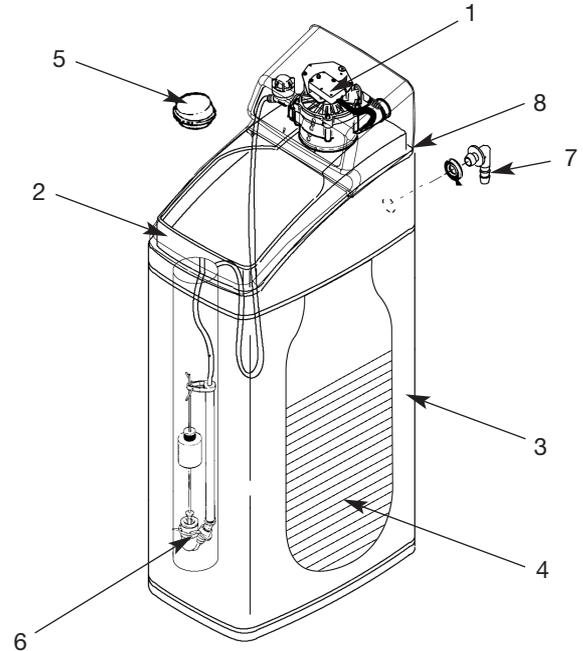
- 1 Control Valve Cover and Electronic Faceplate
- 2 Salt Lid
- 3 Salt Cabinet
- 4 Resin Cylinder
- 5 Brine Well Cover
- 6 Brine Valve
- 7 Overflow Connection rear of Brinetank
- 8 Drain Connection on Control Valve

## Notes

- 1 Serial Number and Date Code are in faceplate cover.
- 2 Remove all packaging parts from inside the unit.
- 3 If you need to remove the valve cover for ease of installation follow the instructions carefully.

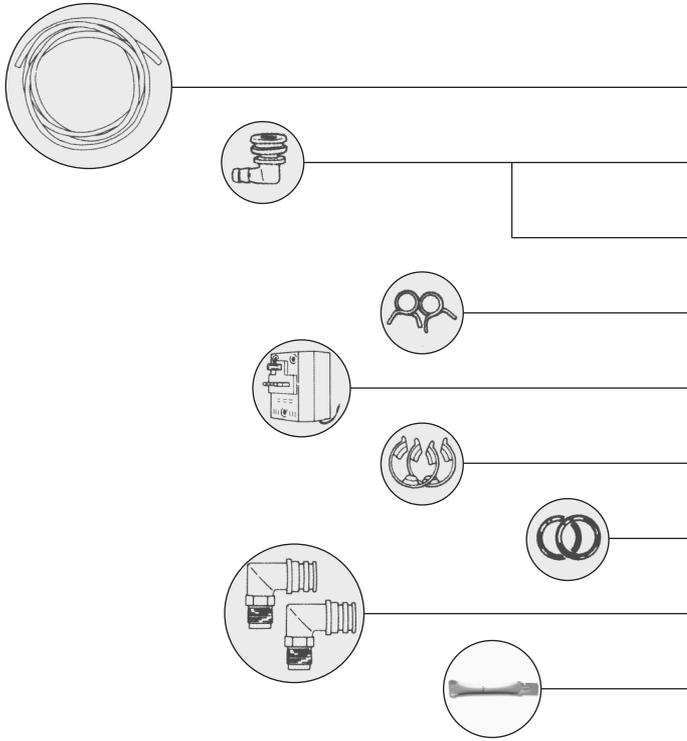
To remove control valve cover pull towards you slowly, taking care not to pull off the wire connections.

Please note that the valve cover is connected to the valve motor, so cannot be removed fully.



**Please Remember** – Only use tablet or pellet salt in your softener!

# Unpacking your water softener (cont)



Description	Quantity	Part Number
Drain/Overflow Tubing	1	7108118
Overflow Elbow	1	1103200
Overflow Grommet	1	9003500
Hose Clips	2	900431
Transformer	1	98124612
Adapter Clips	2	1205500
Adapter 'O'Rings	2	900535
Adapter Elbows (3 / 4")	2	7255583
Silicone Grease	1	n/a

# Installation of your water softener

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## PLANNING AND SITING THE INSTALLATION

The installation of a water softener is relatively easy, but we recommend that this work is undertaken by an EcoWater dealer or plumber. Where possible the water softener should be sited close to the rising main, allowing for any required hard water draw off points, i.e. drinking tap and outside tap. Keep the drain run as short as possible and allow for ease of service and salt access. If installed next to a boiler or hot water cylinder you may have to protect against condensation. When siting the softener please consider space for accessing the unit for servicing etc. Sufficient space should be left behind the unit to allow easy access for repairs and cleaning.

## FREEZING

The installation of all water fittings should be in accordance with local water bylaws and the water softener, and all associated pipework must be protected against freezing. Take special care where the drain runs outside. Freezing will prevent recharge and cause overflowing.

## LEAD PIPEWORK

Where lead pipework exists downstream of the proposed location of the water softener, we advise you ask the local water authority for advice on the replacement of lead pipework. Grants may be available. Homes built since 1976 will not have lead pipework.

## ELECTRICAL REQUIREMENTS

The water softener requires a 240 volt 50 Hz electrical supply taken off a power supply not a lighting circuit. Power is supplied via a 24 volt 50 Hz transformer.

## HARDWATER TAP

Water Authority bylaws require that one tap in the house remains unsoftened. It is also recommended that the garden tap is left with a hard water supply.

## PRESSURE

Low or high pressure could lead to damage or non-operation of the water softener. If the daytime pressure exceeds 4.76 BAR (70 psi) a pressure-reducing valve should be fitted. If daytime pressure is less than 25 psi a pressure pump is required.

**Note:** Night-time pressure will be much higher than daytime.

## FLOW RATES

The water flow must be at least 1 litre per minute for the water softener to work as originally designed.

**Maximum flow is 53 litres per minute (peak).**

**WARNING: FAILURE TO MEET THE FOLLOWING REQUIREMENTS CAN CAUSE DAMAGE TO THE WATER SOFTENER, OR RESTRICT ITS OPERATION.**

**Please Remember** – Only use tablet or pellet salt in your softener!

# Installation of your water softener (cont)

## SPECIFICATION REQUIREMENTS

Maximum Water Temperature 49 °C (120 °F)

Maximum Daytime working pressure 4.76 BAR (70 psi)

Minimum working pressure 1.7 BAR (25 psi)

Minimum system flow 0.06m<sup>3</sup>/hr

Maximum system flow 3.18m<sup>3</sup>/hr

If a pressure-reducing valve is required this may be ordered from EcoWater:

Quote **Part No.800220** for 1/2" or 15mm pipework

Quote **Part No.800223** for 3/4" or 22mm pipework

## UNVENTED OR DIRECT SYSTEMS

Connection to the water softener should be made with 22mm or 28mm copper pipe and not with flexible hoses supplied, to ensure that a satisfactory flow rate is maintained.

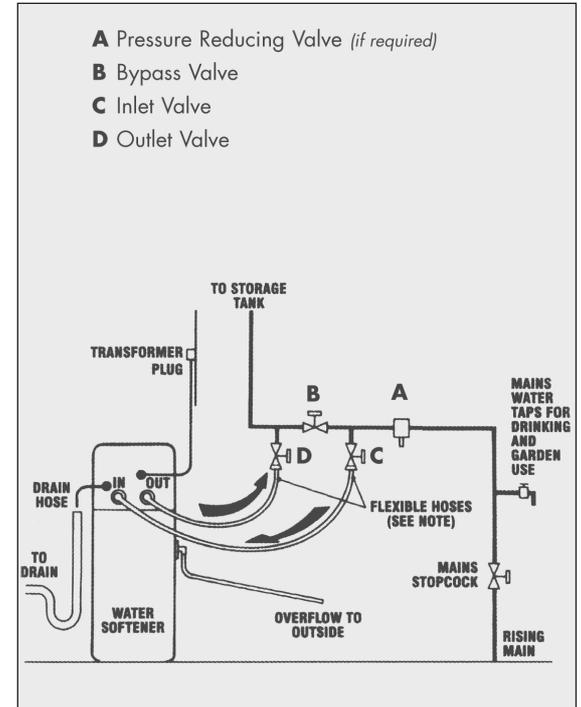
You will also require a suitably sized bypass set and check valve. Full flow valves are recommended. Large bore flexible hoses are available from EcoWater.

## DRAIN HOSE

We recommend that the maximum length of drain line is 3 feet before entering an air gap. Also any rise in height of the drain should not be above 3 feet.

## CENTRAL HEATING SYSTEMS

Central heating systems should always be treated with a proprietary corrosion inhibitor regardless of being filled with softened or hard water. Systems containing aluminium should always be filled with hard water unless instructed otherwise by the manufacturer.



# Step-by-step guide to plumbing the softener

## PLUMBING

Turn off the water supply at the incoming main and begin plumbing as per the installation instructions on pages 4 and 5.

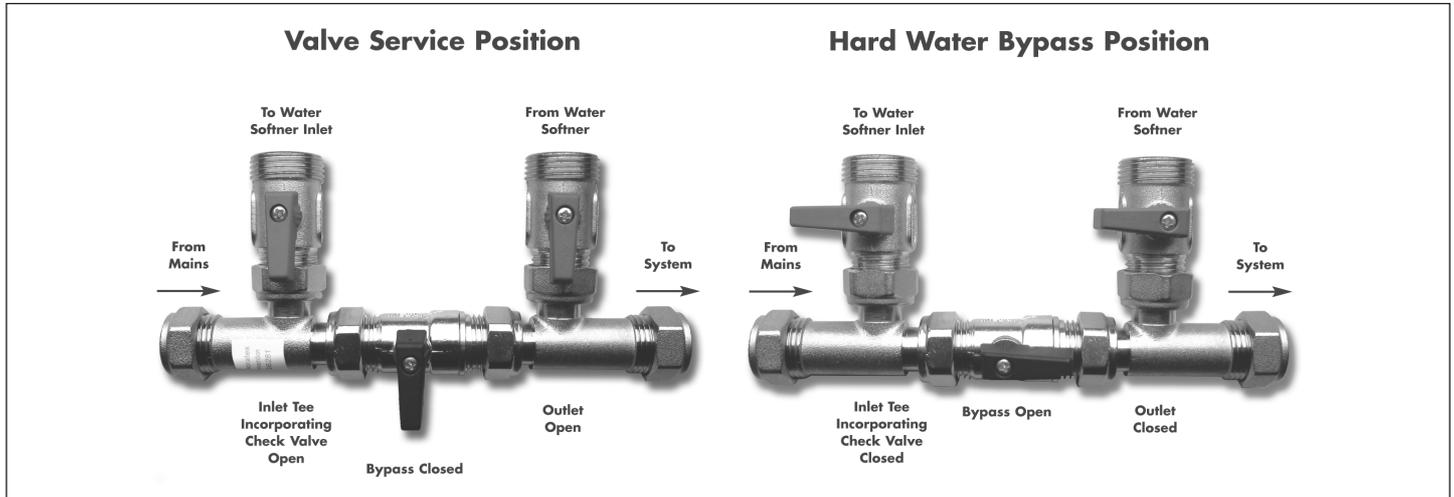
## FIT THE BYPASS KIT (IF INCLUDED)

Cut off the rising main and install the inlet tee with check valve. Next, plumb the bypass, inlet and outlet valves so that the water supply can be turned back on. Use the red valve for the inlet, the blue valve for the

outlet and the black valve as the bypass. Before turning the water back on, make sure the bypass is open and the inlet and outlet valves are closed. This will allow water to pass directly to the household system without it diverting to the water softener.

[The use of the plastic plumbing fittings with copper pipe may affect the electrical earthing or bonding of the copper pipe. If in doubt, we advise that you contact a qualified electrician for advice].

**To bypass softener**, ensure bypass is open (horizontal) as per right hand diagram below.



**Please Remember** – Only use tablet or pellet salt in your softener!

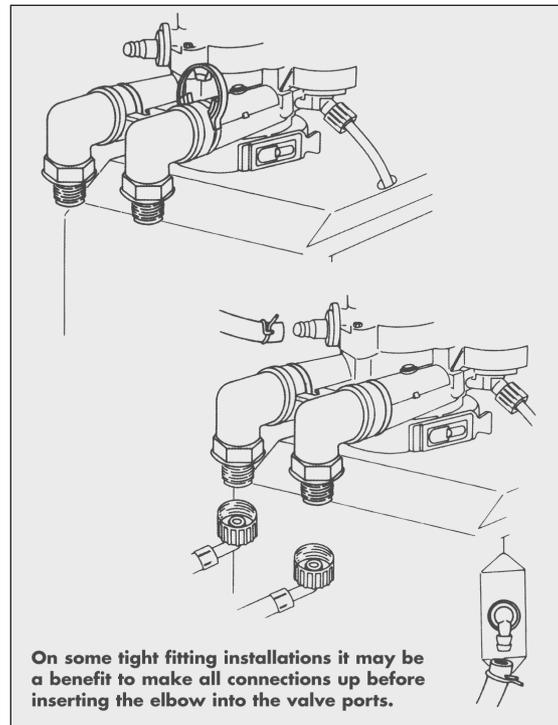
# Step-by-step guide to plumbing the softener (cont)

## SECURE THE ADAPTOR ELBOW

Ensure o-rings are lubricated and in place before snapping the two large hold clips into place, from the top down (see top illustration opposite). Be sure they snap firmly into place so that the adaptors will not pull out. Pull on the adaptors to assure a tight fit has been achieved.

**INLET AND OUTLET CONNECTIONS:** (For unvented or direct systems refer to page 5). Use the connecting hoses provided with the elbow unions to make the inlet and outlet connections. For ease of connection the straight ends may be connected to isolating valves or elbow unions. Fit the filter discs into the straight union end of the inlet/outlet hoses.

**DRAIN OUTLET/OVERFLOW CONNECTION:** Insert the rubber grommet into the overflow socket situated 2/3 of the way up the rear of the water softener cabinet. Only insert the overflow adaptor using the silicone grease provided once the grommet is secure. Cut two lengths of hose as required to make the drain and overflow connections. Fit one length of hose onto the overflow adaptor and one length onto the drain line adaptor. Turn the drain line adaptor so that a straight connection can be made. The drain hose and overflow hose must be secured with the supplied metal clamps (see bottom illustration opposite). Pass the overflow hose through a hole in an outside wall so that its end can be seen. The drain hose may be connected directly into an open drain or via the waste outlet similar to a washing machine. The drain and overflow must be kept straight and not kinked.



# Step-by-step guide to plumbing the softener (cont)

## CONNECT TRANSFORMER

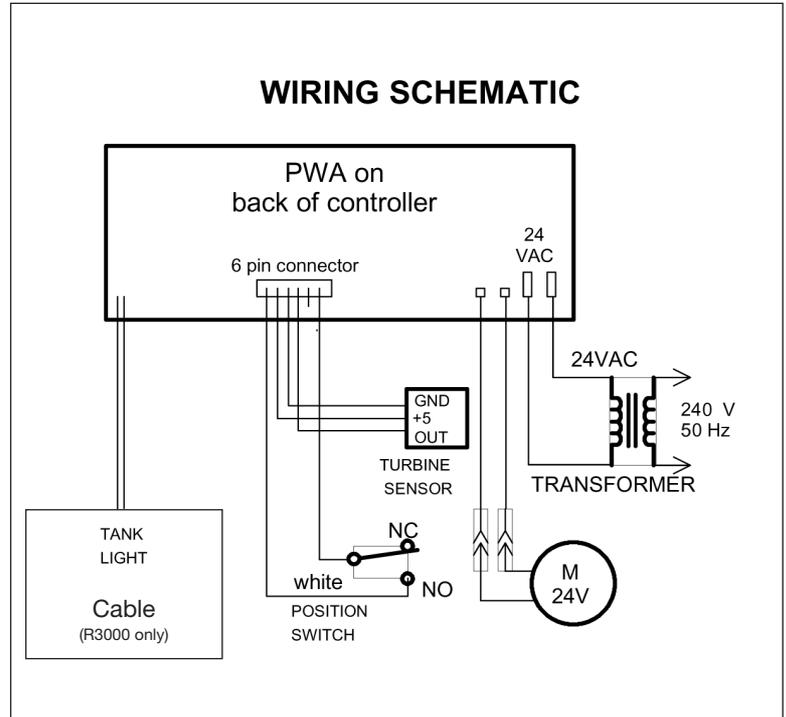
1. Connect the power cable leads to the two terminals on the transformer.

**NOTE:** Check to be sure all lead wire connections are secure on the back of the faceplate.

**CAUTION:** Be sure all wiring is away from the valve gear and motor area, which rotates during recharges.

2. Plug the transformer into a house electrical outlet.

**THE UNIT WORKS ON 24V ONLY. DO NOT CONNECT WITHOUT THE TRANSFORMER.**



**Please Remember** – Only use tablet or pellet salt in your softener!

# Programming the digital demand faceplate controller

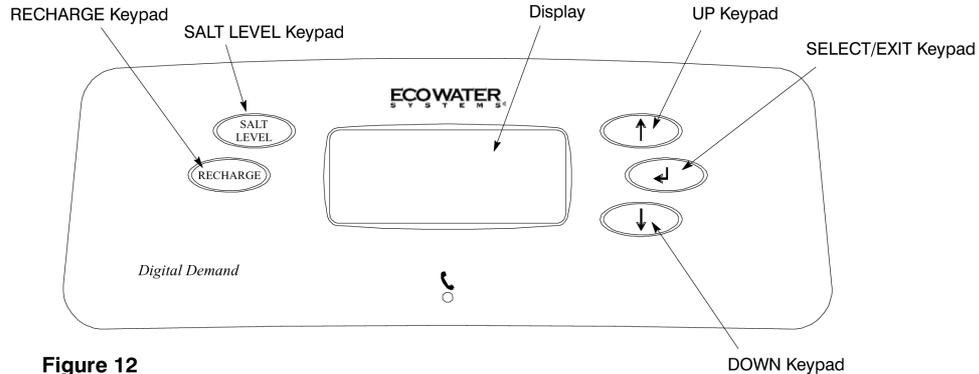
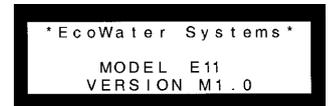


Figure 12

## THE FOLLOWING STEPS ARE FOR FIRST TIME SET UP ONLY.

When the transformer is plugged in, a ‘beep’ will sound, followed by the factory set model code display and software version for a few seconds. Then, 12:00 PM present time display.



**1. MODEL CODE:** The controller is factory set to the model code, which provides the shortest recharge times and greatest water savings. Verify the correct softener model number or set if needed.

**2. SET THE CLOCK:** Use the (↑) or (↓) keypads to set the present time of day. Press (↑) to move the display ahead; press (↓) to move the time backward. NOTE: Each press of a keypad changes the time by 1 minute. Holding in the keypad advances the time more rapidly. Pressing the SELECT/EXIT (↵) keypad will set the clock.

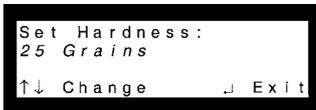


# Programming the digital demand faceplate controller

**3. SET WATER HARDNESS:** The controller is factory set to 430 ppm (25 gpg). Hardness varies from one location to another. Use the kit provided to determine your water hardness in ppm. If necessary change to the unit setting indicated as follows:

Use the (↑) keypad to advance the number; use the (↓) keypad to reduce the number. Each press of a keypad changes the display by 1. Hold down the keypad to scroll. After 25, scrolling will be at a faster rate.

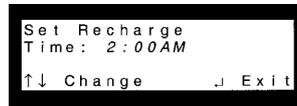
Pressing the SELECT/EXIT (↵) keypad will set hardness level.



WATER HARDNESS	
ppm	Unit Setting (Grains)
(200)	12
(220)	13
(240)	15
(260)	16
(280)	17
(300)	18
(320)	19
(340)	20
(360)	21
(380)	22
(400)	23
(420)	24
(440)	25
(460)	30
(480)	30
(500)	35

# Programming the digital demand faceplate controller

**4. SET RECHARGE TIME:** The controller is factory set to 2:00 AM which is a good time in most households because water is not being used. To select a different recharge start time, use the (↑) or (↓) keypad. Pressing the SELECT/EXIT (↵) button will set there recharge time.



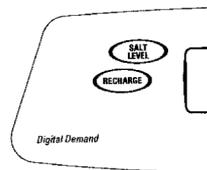
**5. PUT SALT IN SALT STORAGE TANK AND SET SALT LEVEL.** This feature is used when salt is added to the softener. Press the salt level keypad and use the (↑) keypad to reset the level of salt as it corresponds to the decal minimum level 3 on the brinewell. Press the SELECT/EXIT (↵) to set and return to Normal Screen Views.

[NOTE: If set for 2 and below, warning will still come on to warn brine tank needs filling with salt and the salt level indicator needs resetting.]

**6. TO RECHARGE MANUALLY.** To Test: Press the RECHARGE keypad to get to the recharge menu. Move the cursor to Start Recharge Now and press the SELECT/EXIT (↵), starting a recharge.

This recharge purges any air remaining in the resin tank assembly.

This process may take up to 1½ hours



**INSTALLATION OF THE DIGITAL DEMAND ECOWATER SOFTENER IS NOW COMPLETE.**

Additional faceplate controller features and options are described on following pages.

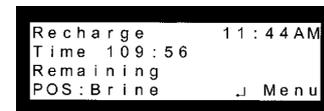
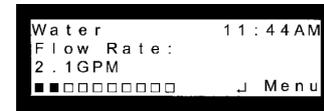
# Faceplate controller – features/options

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## NORMAL SCREEN VIEWS PROVIDING INFORMATION (ROLLING SCREEN)

The display will scroll through as many as 5 screens at an interval of 4 seconds each.

- **Soft Water Available** will show a percent of available soft water and a bar graph at the bottom of the display.
- **Water Flow Rate** is shown in litres per minute or gallons per minute (GPM) flowing through the system at that time and a moving bar graph at the bottom of the screen.
- **Recharge Tonight** is shown only if the unit will be in initiating a recharge that night.
- **Salt Level is Low** is shown only if the salt level is below the amount set for warning.
- **If the unit is in recharge**, the display will show remaining time in recharge and current stage of recharge.



**Please Remember** – Only use tablet or pellet salt in your softener!

# Faceplate controller – features/options (cont)

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**PROGRAM MEMORY:** If electrical power to the EcoWater softener is interrupted, the display is blank, but the face-plate controller keeps the correct time for at least two days. If electricity is off for more than two days when electrical power comes on again, you have to verify clock time is correct. The MODEL CODE, HARDNESS and RECHARGE TIME never need resetting unless a change is desired.

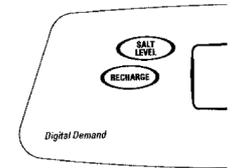
Even if the controller is incorrect, after a long power outage, the unit works as it should to keep your water softened. However, recharges may occur at the wrong time of day until you reset the controller to the correct time of day. To reset present time, see step 2 on page 9.

**CONTROL FEATURES:** There are two keypads on the left side of the display. **Salt Level** keypad is used when adding salt to the brine tank. The level number on the brinewell corresponds to the number to program into the controller. **Recharge** keypad has two options: Set/Cancel recharge tonight, which either sets or cancels a recharge for that night and Start Recharge Now, which will start a recharge immediately.

NOTE: If in a recharge, and the Recharge keypad is pressed, it will advance the valve to the next recharge cycle.

- **SOUND 'BEEPER'** – A 'beeper' sounds while pressing keypads for controller setup. One beep signals a change in the faceplate display. Repeated beeps means the controller will not accept a change from the keypad you have pressed, telling you to use another keypad. For example, while setting the hardness number, the beeper sounds repeatedly when the display reaches 1 (minimum) using the (↓) keypad or 160 (maximum), using the (↑) keypad.

**SETTING SALT LEVEL:** This feature is used when salt is added to the softener. **Press the salt level keypad** and use the (↑) keypad to reset the level of salt as it corresponds to the decal on the brinewell. Press the SELECT/EXIT (↵) to set and return to Normal Screen Views. If set for 2 and below, warning will still come on to recommend installing salt and resetting the salt level indicator.



# Faceplate controller – features/options (cont)

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## INITIATING EXTRA RECHARGES

**RECHARGE NOW:** Press the Recharge keypad to go to the recharge menu. Move square cursor down to Start Recharge Now. Press SELECT/EXIT keypad and a recharge begins immediately.

To assure an adequate supply of conditioned water, at times of unusual or unexpected high water use demand, use the RECHARGE NOW feature. For example, if you have guests and the Soft Water Available screen is at or below 50%, you could deplete softened water capacity before the next recharge is automatically initiated.

To be sure this will not happen, use RECHARGE NOW to restore 100% softened water capacity.

**RECHARGE TONIGHT:** Press the Recharge keypad to go to the recharge menu. Move cursor down to Set/Cancel Recharge Tonight. Press SELECT/EXIT keypad to return to Normal Screen Views and the recharge tonight time indicated. When this feature is set, the EcoWater softener will recharge at the next programmed start time. This feature is beneficial to assure a sufficient supply of softened water for an expected heavy water usage the next day.

To cancel a recharge when RECHARGE TONIGHT **is** shown, press the Recharge keypad to go to the recharge menu. Move cursor down to Set/Cancel Recharge Tonight. Press SELECT/EXIT keypad to return to Normal Screen Views.

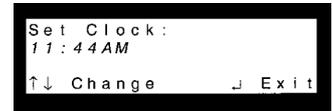
The following is a description of the options in the Programming Menu should you wish to reset a particular setting/option. To enter this menu press SELECT/EXIT (↵) keypad and move square cursor (■) to menu choice. To exit to Normal Screen View without changing a setting move square cursor (■) to EXIT and (↵), which appears at either the top or the bottom of this menu. If no keypad has been pressed display will show for 4 minutes before defaulting back to the Normal Screen Views.

# Faceplate controller – features/options (cont)

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**Set Clock:** Enter Primary Menu (←). Press the (↑) or (↓) keypads until cursor is next to Set Clock. Again, use the (↑) or (↓) keypads to set the present time of day, being sure AM or PM shows, as applicable. Press (↑) to move the display ahead; press (↓) to move the time backward.

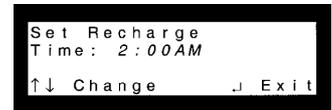
NOTE: Each press of a keypad changes the time by 1 minute. Holding a keypad in changes the time by 32 minutes each second. Press the SELECT/EXIT (←) keypad to set.



**Set Water Hardness:** Enter Primary Menu. Press the (↑) or (↓) keypads until cursor is next to Set Hardness. Press the SELECT/EXIT (←) keypad once to display a flashing number and ppm (or GRAINS). Set the ppm! hardness of your water supply. Use the (↑) keypad to advance the number; use the (↓) keypad to reduce the number. Pressing the SELECT/EXIT (←) keypad will set the hardness level.



**Set Recharge Time:** Enter Primary Menu. Press the (↑) or (↓) keypads until cursor is next to Set Recharge Time. Press the SELECT/EXIT (←) keypad once to display a flashing 2:00am. At this setting, the EcoWater softener begins recharge, or recharge, at 2:00am, ending no later than 5:30am. This is a good time in most households because water is not being used. If **hot** water is used while the unit is regenerating, the water heater will refill with hard water. To select a different recharge start time, use the (↑) or (↓) keypad.



Pressing the SELECT/EXIT (←) keypad will set the recharge time.

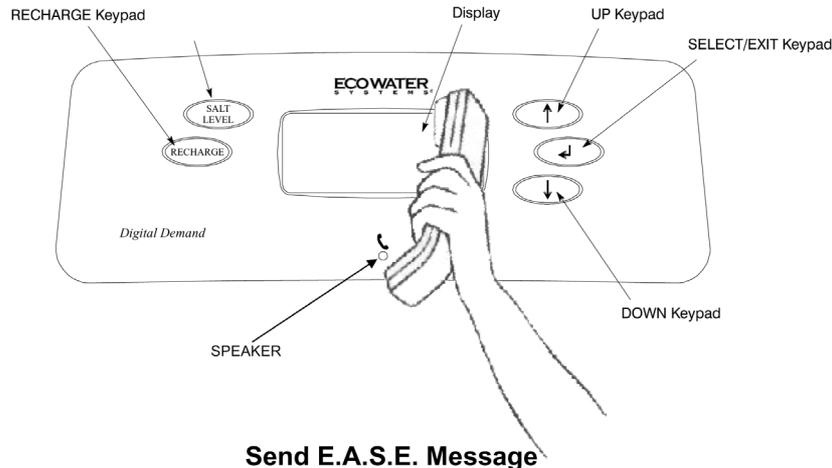
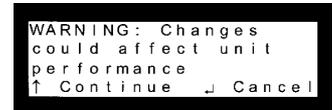
**To exit to Normal Screen Views without changing a setting move square cursor (■) to EXIT and (←)**

# Faceplate controller – features/options (cont)

## Primary Menu, continued

**Send E.A.S.E. Message:** Enter Primary Menu. Press the (↑) or (↓) keypads until cursor is next to Send E.A.S.E. Message. Press the SELECT/EXIT (↵) keypad. The unit will automatically start sending E.A.S.E. message and show a progress bar on the display.

**Advanced/Service:** By entering these menus, a warning screen will first be displayed. Only technicians or knowledgeable users should use these menus.

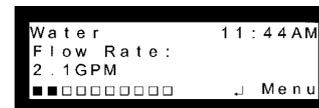


**Please Remember** – Only use tablet or pellet salt in your softener!

# Faceplate controller – features/options (cont)

## Primary Menu, continued

**Water FlowRate:** Enter Primary Menu. Press the (↑) or (↓) keypads until cursor is next to Water Flow Rate. Press the SELECT/EXIT (↵) keypad. When selected, this screen will show the water flow rate in litres per minute (LPM) or gallons per minute (GPM) with the moving bar graph at the bottom of the display.



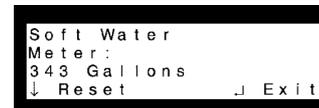
**Water Used Today:** Enter Primary Menu. Press the (↑) or (↓) keypads until cursor is next to Water Used Today. Press the SELECT/EXIT (↵) keypad and the litres/gallons used since midnight will be shown in the display.



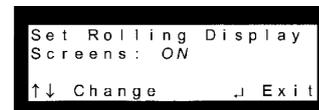
**Average Water Use:** Enter Primary Menu. Press the (↑) or (↓) keypads until cursor is next to Average Water Use. Press the SELECT/EXIT (↵) keypad and the average litres/gallons use each day will be shown in the display.



**Soft Water Meter:** Enter Primary Menu. Press the (↑) or (↓) keypads until cursor is next to Soft Water Meter. Press the SELECT/EXIT (↵) keypad. This screen is similar to a trip odometer in that it will count the number of litres/gallons through the system until it is reset. To reset back to zero press the (↓) keypad.



**Set Rolling Screen:** Enter Primary Menu. Press the (↑) or (↓) keypads until cursor is next to Set Rolling Screen. Press the SELECT/EXIT (↵) keypad. This menu will disable the Normal Screen Views from scrolling and will show only the screen that is most current.

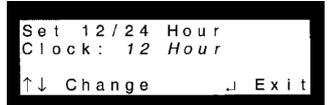


# Faceplate controller – features/options (cont)

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## Primary Menu, continued

**Set 12/24 Hour Clock:** Enter Primary Menu. Press the (↑) or (↓) keypads until cursor is next to Set 12/24 Hour Clock. Press the SELECT/EXIT (↵) keypad. Moving the (↑) or (↓) keypads will change clock display from 12 hour (AM& PM) or 24 hour format.



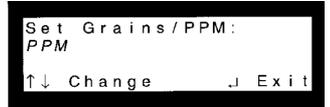
```
Set 12/24 Hour  
Clock: 12 Hour  
↑↓ Change      ↵ Exit
```

**Set Gallons (US Gallons)/Litres:** Enter Primary Menu. Press the (↑) or (↓) keypads until cursor is next to Set Gallons (US Gallons)/Litres. Press the SELECT/EXIT (↵) keypad. Moving the (↑) or (↓) keypads will change displays to indicate water in gallons or litres.



```
Set Gallons/Liters:  
Gallons  
↑↓ Change      ↵ Exit
```

**Set Grains/PPM:** Enter Primary Menu. Press the (↑) or (↓) keypads until cursor is next to Set Grains/PPM. Press the SELECT/EXIT (↵) keypad. Change between displaying hardness units in grains or parts per million (PPM).



```
Set Grains/PPM:  
PPM  
↑↓ Change      ↵ Exit
```

# Troubleshooting

If you are experiencing poor water flow, please check all plumbing first as it is extremely rare for a softener to cause flow rate problems.

Checklist	Solution	Page No.
<b>PROBLEM: Hard water or, intermittently hard water</b>		
1. Is salt level above level 2.	1. Fill the cabinet with salt and 2 litres of water. Set salt level & recharge now.	13 & 14
2. Is the bypass valve closed and the inlet and outlet valves open?	2. Close the bypass valve and open the inlet and outlet valves.	6*
3. Is the hardness setting correct?	3. Reset the unit setting as per table open the inlet and outlet valves.	10
4. Is the salt warning displayed?	4. Fill the cabinet with salt and 2 litres of water. Set salt level & recharge now.	13 & 14
<b>PROBLEM: No water</b>		
1. Is the water mains open?	1. Open water mains.	5
2. Are the inlet and outlet valves open?	2. Open the inlet and outlet valves	6*
<b>PROBLEM: Unit recharges at incorrect time of day</b>		
1. Is the present time correct?	1. Reset the clock.	15
2. Is the recharge time correct?	2. Reset the recharge time.	15
3. Has there been a power cut?	3. Reset the clock.	15

\* Please see diagram

# Troubleshooting (cont)

Checklist	Solution	Page No.
<b>PROBLEM: No recharge occurring or, little or no salt usage</b>		
1. Is the water soft?	1. If yes, no action is required.	
2. Is the water level in the salt cabinet high?	2. If yes, check the drain link is not frozen or blocked. Initiate an immediate recharge.	14
<b>PROBLEM: Excessive salt usage</b>		
1. Check the Hardness.	1. Reduce the unit hardness setting if incorrect	15
<b>PROBLEM: No water in cabinet or very low</b>		
1. This is quite normal. Unlike conventional water softeners only a few inches of water is at the bottom of the cabinet	1. No action necessary.	
<b>PROBLEM: High water level in cabinet</b>		
1. Is the water level in the salt cabinet high? (i.e. above 2 on the salt level indicator.)	1. Initiate an immediate recharge. If the problem does not return, there is nothing wrong.	14
<b>PROBLEM: Water running down the overflow</b>		
1. Is the water level in the salt cabinet high? (i.e. above 2 on the salt level indicator.)	1. If yes, bypass the water softener and call for service.	
<b>PROBLEM: Water running down the drain line constantly</b>		
1. Is the unit in recharge mode?	1. If yes, wait until it finishes, check the clock and recharge time settings and adjust if incorrect.	15
2. Does an error code appear, e.g. "ERR01"?	2. Check all electrical connections are secure. Turn the power off for ten seconds, and then switch back on.	9 & 6*
<b>Important Notes:</b> If problem persists, bypass softener and call for service.		

\* Please see diagram

**Please Remember** – Only use tablet or pellet salt in your softener!

# Troubleshooting (cont)

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Checklist	Solution	Page No.
<b>PROBLEM: Electronic faceplate</b>		
1. Is the faceplate blank?	1. Check the power is turned on and all connections are secure.	8
2. Does an error code appear, e.g. "ERR03"?	2. Check all electrical connections are secure. Turn the power off for ten seconds, and then switch back on. If problem persists, bypass softener and call for service.	6*

\* Please see diagram

# Guarantee, service and general information

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All EcoWater softeners are fully covered by a one year parts guarantee against manufacturing defect from the date of purchase. Please read below for details on Labour/guarantee. This guarantee does not effect the statutory rights of the consumer. Any faults which are not attributable to the water softener but to faulty installation or operation will be chargeable.

The following are excluded from your warranty and a call out will be chargeable.

1. Water softeners installed where pressure or flow rates are not within the limits stated in the user and installer handbook.
2. Faults arising from misuse or neglect.
3. Failure to replenish salt, or not using tablet salt.
4. Resetting the programmer in the event of a power failure.
5. Resetting the programmer when the influent water hardness or the number of people in the household changes.
6. Water softeners are not installed in accordance with the local authority regulations.
7. Any fault arising from repairs or alterations to the water softener carried out by anyone other than engineers employed by EcoWater Systems Limited, or representatives working on EcoWater authority.
8. Water softeners installed outside the mainland counties of England.
9. Faults arising from faulty installation, plumbing or electrical.
10. Any defect or damage occasioned by fire, lightning, explosion, flood, storm, tempest, impact or other extraneous causes.
11. Water softener installed on bore hole, well water or a non-standard installation not covered by the instruction book may be subject to limitations on the warranty provided.
12. Units installed in such a way that access for servicing is restricted.

**ECOWATER**  
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